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Title : Subscriber line terminal that allocates dynamic bandwidth

(57) [Abstract]

[Object] To provide an SLT capable of suppressing vibration of a shared bandwidth.

[Solution] A subscriber line terminal that allocates a dynamic bandwidth for transmitting polling information to a plurality of terminal devices includes: an in-buffer-information-amount receiving unit that receives in-buffer information amounts from the plural terminal devices; a deficient-bandwidth calculating unit that calculates a deficient bandwidth of each of the terminal devices; an in-buffer-information-amount-utilization allocating unit that allocates an in-buffer-information utilized amount to each terminal device; a history-utilization allocating unit that allocates a history utilized amount to each terminal device based on each first history value of each terminal device; a history-value updating unit that updates the first history value about each terminal device based on the bandwidth dynamically allocated to each terminal device; a polling generating unit for a shared bandwidth that generates polling information indicating allocation of each time slot to each terminal device; and a polling-information transmitting unit that transmits the polling information to the plural terminal devices.

[0020]

[Means for Solving the Problem]

According to one aspect of the present invention, there is provided an SLT that terminates a plurality of terminal devices and dynamically allocates times slots used by the terminal devices to transmit information so as to allocate dynamic bandwidths for transmitting to the terminal devices polling information for instructing time slot allocation to the terminal devices, the SLT including: an in-buffer-information-amount receiving unit that receives an in-buffer-information amount indicating an amount of information to be transmitted, which is accumulated in a predetermined buffer provided in each of the terminal devices and is to be transmitted, from the terminal devices; a deficient-bandwidth calculating unit that calculates a deficient bandwidth required by each of the terminal devices for transmitting information of each of the in-buffer information amounts, based on the in-buffer-information amount of each of the terminal devices; a specific-parameter managing table that stores therein the in-buffer-information amounts and first history values about bandwidths each dynamically allocated in the past to each of the terminal devices; an in-buffer-information-utilized-amount allocating unit that allocates the in-buffer-information utilized amount to each of the terminal devices, based on a total-shared-bandwidth upper limit indicating an upper limit of each of the deficient bandwidths for the terminal devices and bandwidths dynamically allocated to the terminal devices; a history-utilization allocating unit that allocates a history utilized amount to each of the terminal devices, a

history utilization bandwidth which is a difference between the total-shared-bandwidth upper limit value and a total value of the in-buffer-information utilized amounts, based on each of the first history values of the terminal devices, when a total of the in-buffer-information utilized amounts for all the terminal devices is smaller than the total-shared-bandwidth upper limit; a history-value updating unit that updates the first history value for each of the terminal devices based on a bandwidth dynamically allocated to each of the terminal devices, including a bandwidth of each of the in-buffer-information utilized amounts and each of the history utilized amounts, so as to write the update first history value onto the device-specific-parameter managing table; a polling generating unit for a shared bandwidth that generates polling information indicating allocation of each time slot to each of the terminal devices based on the in-buffer-information utilized amount and the history utilized amount, dynamically allocated to each of the terminal devices; and a polling-information transmitting unit that transmits the polling information to the terminal devices.